LPC# 1110900002 McHenry County
South California Chemical
ILD 059 483 081
SF/HRS

Site Reassessment

Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

CERCLA
Site Reassessment

for:

South California Chemical
Union, Illinois
ILD 059483081

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

April 30, 2018

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Section 1.0 Introduction

On January 7th, 2016, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the South California Chemical property (Southern California Chemical) Village of Union, McHenry County, Illinois.

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the South California Chemical site. The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work, and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL), or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment process, Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The South California Chemical site was initially placed into CERCLIS (which is now known as the Superfund Enterprise Management System or SEMS) data base on March 14th, 1989. A Preliminary Assessment (PA) was completed on February 28th, 1990. An Integrated Site Assessment (SI) was completed on April 3rd, 1995. The Site Team Evaluation Prioritization (STEP) which is similar in scope to an Expanded Site Inspection (ESI) was completed on September 16, 1999. A Site Reassessment (SR) without sampling was completed on August 31st, 2016.

This Site Reassessment Report with Sampling will describe current site conditions and illustrate how the site has changed since the last CERCLA investigation, the 2016 Site Reassessment Report. This second Site Reassessment is different from the last investigation due to the fact that both soil and groundwater samples were collected during this investigation and it is focused on Parcel 3 of the site. This report will contain a summary of existing information that will include site history, current site conditions, evaluate current and past analytical data,

and evaluate past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

Section 2.0 Site Description and History

2.1 Site Description

The South California Chemical site is located in a mixed residential, commercial, and industrial area inside the southeast boundaries of the City of Union, at 17415 Jefferson Street, McHenry County, Illinois (see Figure 1 and Figure 2). The property is bordered on the north by Jefferson Street, on the east by private businesses, on the west by Solarecrete Corporation, and on the south by the Chicago and Northwestern Railroad tracks. The site occupies a total of about 7 acres of land in the Northwest ¼ of the Southeast ¼ of Section 4, Township 43 North, and Range 6 East. The site is located at 42.23253 degrees latitude and -88.53596 degrees longitude.

The South California Chemical site originally consisted of three parcels of property (see Figure 3). Parcels one and two (#17-04-400-17 and #17-04-400-18) consists of the inactive manufacturing plant (Southern California Chemical Company) located at 17415 Jefferson Street. Parcels one and two contain approximately 2.5 acres of land. The property is currently owned by Phibro-Tech, Inc. of Ft. Lee, New Jersey. Phibro-Tech, Inc. has parcels one and two currently enrolled in the Site Remediation Program (SRP) at the Illinois EPA. The third parcel (#17-04-400-024) consists of a wooded dump area approximately 4.5 acres in area and is adjacent to the east side of parcels one and two. The third parcel is privately owned by an individual.

The site topography of Parcels 1 and 2 is relatively flat. These two parcels formerly contained the four buildings and well pump house used by the Southern California Chemical Company. During the summer of 2002, the remaining buildings and structures on these parcels were demolished and removed. The concrete foundations of the former site still exist. A rail spur is also still located on the southern portion of the site. Site access to Parcels 1 and 2 are currently restricted by a security fence that surrounds most of the property.

The site topography of Parcel 3 is also relatively flat. This parcel was specifically excluded from the purchase agreement of 1984, when Phibro-Tech purchased Parcels 1 and 2 of the Southern California Chemical Company facility. Parcel 3 was formerly part of the Southern California Chemical Company facility, but is currently a partially fenced, densely wooded area with a pond covering a little bit less than ½ acre, on the southern portion of the parcel. According to the STEP investigation which was completed in 1999, Parcel 3 was the location of a dump area for the Southern California Chemical Company facility.

Census data has been compiled and formatted for use in GIS applications by ESRI, a GIS software company. ESRI used demographic data from the "Census 2000 Summary File" represented by Census Block Centroids to generate data that can be overlain onto maps for analysis (ESRI). In order to calculate population in areas surrounding the site, the ESRI census data was overlain onto a map from the region and queried based on distance from the site's boundary. Population data based on GIS analysis for areas surrounding the site is shown below. A map illustrating the site with 4-mile distance rings can be found as Figure 4 to this report.

Population rings within four miles of the site

Distance (mi)	Population
On-Site	0
0 - ¼ mile	103
¼ mile - ½ mile	276
½ mile - 1 mile	257
1 mile - 2 miles	298
2 miles - 3 miles	746
3 miles - 4 miles	5,518

2.2 Site History

The South California Chemical site was leased by the Southern California Chemical Company in 1970 and later purchased by the same company in 1982. Although the site is officially listed as "South California Chemical" for CERCLA investigations, the Southern California Chemical Company is the actual name of the company that is believed to have contributed to the bulk of the contamination found at the site.

Prior to Southern California Chemical Company leasing the South California Chemical property, the site was the previous location of several different types of plants. These plants included a grain plant, a milk plant, and possibly a shingle manufacturing plant according to some of the records. The original manufacturing facility consisted of four buildings of approximately 24,000 square feet.

Southern California Chemical Company mainly manufactured inorganic chemical products for the aerospace and electronics, but also sold by-product of their copper oxide residuals to the agricultural and wood preserving industries. Activities conducted by Southern

California Chemical Company involved the manufacture of various inorganic chemicals including copper sulfate pentahydrate, copper oxide, proprietary and patented continuous ammonia etchants as well as the recycling and refining of spent circuit board etchant which was resold to the printed circuit board operators after purification.

Southern California Chemical Company manufactured solder strippers, brighteners, conditioners, and etchants. Feedstocks for the etchant recycling process consisted of a portion of the spent etchant being placed in a reaction vessel charged with sodium hydroxide, which resulted in a reaction that formed ammonia and a suspension of cupric oxide. The ammonia was scrubbed with hydrogen chloride which resulted in a solution of ammonium chloride. The ammonium chloride was placed along with the other portion of the spent etchant, into another reactor vessel where anhydrous ammonia and air were added. This process resulted in a refined printed circuit board etchant which was sold back to the circuit board manufacturers.

The company had a number of hazardous waste storage containers. These included six aboveground storage tanks (located on Parcels 1 and 2) ranging from six to ten thousand gallon capacity and potential storage capacity for up to twelve hundred fifty-five gallon drums. Additionally, the land east of the manufacturing area (Parcel 3) had exposed fragments of buried circuit boards which were deposited over the years that the facility was in operation.

In 1984, Parcels 1 and 2 of the Southern California Chemical Company facility were purchased by Phibro-Tech. In the purchase agreement, Phibro-Tech specifically stated that Parcel 3 was excluded from this purchase and is currently privately owned by an individual. Following the purchase of Parcels 1 and 2, Phibro-Tech operated their portion of the South Chemical Site as an inorganic chemical manufacturing plant until 1988. In 1988, Phibro-Tech ceased production and the process equipment was subsequently dismantled.

2.3 CERCLA Investigative History

In 1979, the attorney general's office prosecuted Southern California Chemical Company for a chemical spill at its site. Southern California Chemical was forced to clean up an adjacent farm field and remove contaminated soil. Placement of S. California Chemical in the CERCLIS database in March of 1989, was a result of a request for discovery action initiated by the Illinois EPA. This action was taken because of chloride contamination found in a Village of Union

Well, (b) (9) [redacted] The chlorides found in the village well were similar in structure to the chemicals in the 1979 spill at Southern California Chemical.

The facility received its initial CERCLA evaluation in the form of a Preliminary Assessment (PA) report by the Illinois EPA, in February of 1990. The 1990 report indicated that some residents complained that some evaporation basins containing copper sulfate sludge located on the Southern California Chemical Site had leaked and were causing trees north of the facility to die because of excessive copper intake. No leaks were ever detected in the basins, but high copper levels were found in the Box Elder trees and soil across the street and in a schoolyard near the plant. Southern California Chemical did re-sod a portion of the school yard. The basins were demolished and backfilled with soil/sand in 1988 after being idle for nearly 5 years. The 1990 PA also noted that numerous spills and ammonia releases inside the plant have prompted complaints by area residents. During various compliance and RCRA inspections at the site, poor ratings were repeatedly given due to the "sloppy housekeeping" practices at the site. At the completion of the PA, it was determined that conditions at South California Chemical posed enough of an environmental threat to move to the next step in the CERCLA process.

In May of 1994, the Illinois EPA conducted a CERCLA Integrated Site Assessment (SI) which was completed on April 3rd, 1995. During the investigation, ten soil samples and three groundwater samples were collected. One of the groundwater samples was collected at the Village or City of Union well located (b) (9) [redacted]. The other two groundwater samples were collected from monitoring wells located on the Southern California Chemical property. None of the groundwater samples collected detected any chemical contaminants of concern above Removal Management Levels (RMLs). For the soil samples collected during the SI, most of the samples were collected in Parcel 3 (the dump area) with a few samples collected off the site. Two of the samples exceeded the RML for copper. At the completion of the SI, South California Chemical was determined to pose enough of an environmental threat to warrant further investigation in the CERCLA process.

In mid-April 1998, the Illinois EPA performed the sampling portion of the Site Team Evaluation Prioritization (STEP) investigation. The STEP investigation is equivalent to the Expanded Site Inspection (ESI) in the CERCLA program. During the investigation, ten soil samples and seven groundwater samples were collected. None of the RMLs were exceeded for that water samples. For the soil samples, several RMLs were exceeded. These included copper,

lead, and several Polynuclear Aromatic Hydrocarbons (PAHs). After the completion of the STEP report on September 16, 1999, it was determined that South California Chemical could either enter Illinois EPA's Site Remediation Program or to go through additional CERCLA investigations.

On August 31, 2016, the first Site Reassessment was completed on the South California Chemical site. That investigation did not include sampling. It summarized current site conditions, evaluated past analytical data, and evaluated remedial activities that happened since the STEP investigation was completed in September of 1999. During the course of that investigation, it was determined that Parcels 1 and 2 were continuing through the Site Remediation Program at the Illinois EPA, but that samples needed to be collected on Parcel 3 in order to evaluate the current environmental impact of the past activities at the site.

Section 3.0 Other Cleanup Authorities and Activities

The Southern California Chemical Company was regulated under the Resource Conservation and Recovery Act (RCRA) as a Small Quantity Generator and is in the process of undergoing RCRA closure of the area used for manufacturing (Parcels 1 and 2). This closure process does not involve the dump area to the east (Parcel 3).

The facility was issued permit number 111090AAG by the Illinois EPA's Division of Air Pollution Control on March 16, 1983 for the operation of one scrubber used in the ferric chloride process. The Illinois EPA Division of Land Pollution Control issued the company permit number 1981-45-OP in 1981 to operate a waste management site to recover spent etchant. The Illinois EPA Division of Water Pollution Control issued permit 1984-EB-2998 on February 6, 1984 for a concentration, precipitation, and pH adjustment industrial treatment works to treat 11,250 GPD DAF of copper oxide production and wash wastewater with force main discharge to the Kishwaukee River but the treatment works was never constructed.

Currently, available information suggests that the site is not subject to the regulations of other pertinent statues including the Atomic Energy Act (AEA), the Uranium Mill Tailing Radiation Control Act (UMTRA), or the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

3.1 Parcels 1 and 2

In February 2005, Phibro-Tech enrolled Parcels 1 and 2 in the Site Remediation Program (SRP) at the Illinois EPA. The goal of the SRP program is to issue a No Further Remediation (NFR) letter to the properties enrolled in the program. The Illinois EPA is authorized to issue this letter to applicants who have successfully demonstrated, through proper investigation and, when warranted, remedial action, that environmental conditions at the remediation site do not present a significant risk to human health or the environment.

In August 2008, ENVIRON International Corporation (one of the various consultants hired by Phibro-Tech), wrote that "several phases of soil and groundwater investigations have been conducted by various consultants on behalf of Phibro-Tech. The results of these investigations have been analyzed and described in various reports submitted to the IEPA." ENVIRON

International Corporation then went on to list the following sixteen reports (which are located in the Illinois EPA's file system):

- *"Interim Report for Hydrogeologic Engineering Investigation,"* dated November 29, 1988.
- *"Draft Report Phase III – Hydrogeologic Engineering Investigation,"* dated September 9, 1990.
- *"Information Submittal,"* dated September 28, 1990.
- *"Phase IV – Hydrogeologic Engineering Investigation,"* dated March 20, 1991.
- *"Report of Investigation, Phase I Soil Sampling Investigation,"* dated March 20, 1991.
- *"Proposed Sampling Program, RCRA Closure Project,"* dated August 30, 1991.
- *"Phase II Soil Investigation Report, RCRA Closure Project,"* dated March 13, 1992.
- *"Summer 1992 Field Inspection Report,"* dated September 28, 1992.
- *"First Quarter – 1993 Ground Water Monitoring Report,"* dated July 16, 1993.
- *"Closure and Post-Closure Care Plan,"* dated August 5, 1993.
- *"Request for a Site-Specific Determination of Clean Closure,"* dated September 1994.
- *"Hydrogeologic Investigation Work Plan,"* dated September 1994.
- *"Additional Risk Characterization Work Plan,"* dated December 1996.
- *"Additional Soil Characterization Work Plan, Revision 1,"* dated December 1997.
- *"Remedial Action Plan,"* dated August 2003.
- *"Site Investigation Work Plan,"* dated May 15, 2005.

3.1 Parcel 3

The Site Team Evaluation Prioritization was completed on September 16, 1999. That investigation indicated the presence of soil and groundwater contamination on Parcel 3. Two Removal Management Levels (RMLs) were exceeded in the soil for Parcel 3. Benzo(a)pyrene was detected at 32 mg/kg (Industrial RML = 29 mg/kg) in sample X102 (soil sample collected at the northwest portion of the dump area) and lead was detected at 1240 mg/kg (Industrial RML = 800 mg/kg) in sample X103 (soil sample collected at the southwest portion of the dump area). Furthermore, there are no records that Parcel 3, which was the dump area for the Southern

California Chemical Company manufacturing plant, has undergone any remediation activities or investigations since 1999. The parcel is vegetated and there are still circuit boards present on the property. No records can be found that indicate that any of the contamination found on Parcel 3 has been removed. It does not appear that any other governing authority has tried to identify or remove the source of the chemical contamination found on Parcel 3.

Section 4.0 Site Reassessment Field Activities

4.1 Sampling Activities

During the Site Reassessment, all samples were collected in accordance with the Illinois EPA's Quality Assurance Project Plan (QAPP) and the Illinois EPA's Bureau of Land Sampling Procedures Guidance Manual. Soil samples were collected with stainless steel trowels and put directly into sampling jars.

The depth to groundwater at South California Chemical was found to be about 8 - 16 feet below ground surface (bgs). Fencing along the borders of the property and dense vegetation prevented taking groundwater samples in the center of the site, but samples were collected on the north edge of the property, the school grounds across the street from the site (in the direction of groundwater flow), and at one of the city wells west of the site.

4.1.1 Soil

Stainless steel trowels were used to scan various locations at various depths with an X-Ray Fluorescence (XRF) instrument (see Figure 6 and Attachment C). Two of the contaminants of concern for this site (lead and copper) were recorded in the field in a logbook (see Attachment A). The XRF screening locations were recorded using a Trimble Global Positioning System (GPS). The locations of all of the screened locations are depicted in the Figure 6 XRF Location Map.

Fourteen samples (X101-X113) were collected at nine of the previously XRF screened locations. Sample X105 is a duplicate sample of X104 taken for Quality Control/Quality Assurance purposes. The locations were chosen based on the results of the XRF screening and relocated using the GPS. Sample X110 was taken as the background sample. Samples were collected into glass jars using stainless steel hand trowels at the depths with the most suspected contamination and in the top three feet. The locations of the soil samples are depicted in the Figure 7 Soil Sample Location Map.

The samples were analyzed for the organic and inorganic portions of the Target Compound List (TCL). Sampling locations were photo documented (see Attachment B).

4.1.2 Groundwater

Five groundwater samples were collected at four locations. Sample G110 is a duplicate sample of G101 taken for Quality Control/Quality Assurance purposes, and sample G102 was taken as the background sample from a city drinking water supply well located west of the site. Groundwater sample G101/G110 was collected using the IEPA's truck mounted Geoprobe hydraulic/percussion boring system and the Screen Point 16 stainless steel groundwater grab-sampling equipment, Teflon tubing, and a variable speed peristaltic pump. Groundwater samples G103 and G104 were collected from existing PVC monitoring wells, from locations adjacent to the site, utilizing Teflon tubing and a variable speed peristaltic pump. The groundwater was collected at the fourth location (one of the city wells) straight from the spigot on the pump before the water went through any filtration processes. All of the samples were collected after purging the water for at least twenty minutes. During this time, temperature, conductivity, and pH readings were monitored until the readings stabilized and the water could be collected.

The samples were analyzed for the organic and inorganic portions of the Target Compound List (TCL). Well locations were recorded using GPS. The locations of the groundwater samples are depicted in the Figure 5 Groundwater Sample Location map.

4.2 Analytical Results

Organic soil samples were shipped to ChemTech Consulting Group located at 284 Sheffield Street in Mountainside, New Jersey for analysis. Inorganic soil samples were shipped to Shealy Environmental Services, located at 106 Vantage Point Drive, West Columbia, South Carolina for analysis.

The background soil sample (X110) was taken north of the South California Chemical site in an area deemed likely to not be contaminated from past site activities. The background groundwater sample (G102) was taken west of the site from one of the city wells. The criteria used to determine an observed release is based upon analytical samples that are at least three times background concentrations. In each subsection below, the actual samples are compared to the background level for each individual analyte for each matrix. If a sample contains a level of an analyte at least three times the background concentration, then the sample was highlighted in red in the sample table as meeting the observed release criteria (Tables 3, 4 and 6).

4.2.1 Soil

Fourteen samples (X101-X113) at thirteen boring locations were collected during the 2015 Site Reassessment. The background sample for this matrix was X110. A map with the location of the samples is included as Figure 7.

For the VOCs, none of the analytes met the observed release criteria (Table 1). None of the VOCs were above the laboratory reporting limit in any of the samples.

For the SVOCs, two of the samples (X102 and X109) had analytes that met the observed release criteria (Table 2). Pyrene was detected between the method detection limit and the reporting limit in the background sample (X110). The pyrene result in the background was estimated as a result. This estimated result made sample X102 meet the observed release criteria for pyrene at 230 ug/kg even though the reporting limit for this sample was 220ug/kg. Sample X109 had seven analytes that met the observed release criteria. They were phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and benzo(a)pyrene. All of the analytes that met the observed release criteria were compared to Regional Management Levels (RMLs). None of the SVOCs analytes that met the observed release criteria exceeded the RMLs.

For the inorganic tests, multiple analytes met the observed release criteria for all of the soil samples. Table 5 should be consulted for a complete list. Included in this list are contaminants of concern from past investigations. These analytes that met the observed release criteria were also compared to RMLs. Copper was the only analyte that was found to exceed the RMLs for residential soil. Samples X102, X104, and X105 all exceeded the RML for copper. The analytes were compared to residential RML criteria due to the presence of residential and business properties nearby. No exceedances were noted for industrial soils.

4.2.2 Groundwater

Four groundwater samples (G101/G110, G103, G104) were collected at three locations on the northern edge of the site and across the road on the north end of the site. The background sample (G102) was collected from one of the city wells west of the site. A map with the location of the samples is included as Figure 5.

For the VOCs and SVOCs, none of the analytes met the observed release criteria. In fact, none of the analytes were detected above the reporting limits except for a low diethylphthalate detection in the field blank (FB). See Table 3 and Table 4 for a complete listing.

For the inorganic tests, multiple analytes were detected above the reporting limits. Three analytes, chromium, iron, and manganese, were noted to meet observed release criteria in samples G101/G110 and G103. Table 6 should be consulted for a complete list. Although most of the compounds detected are at levels typically seen as naturally occurring, the analytes that were detected were compared to Removal Management Levels (RMLs). In G101 and the duplicate sample of G101, G110, manganese was reported just above the RML of 1300ug/L. Lead at 19.7ug/L exceeded the MCL (15ug/L) in G103.

4.3 Additional Data

Soil locations were field analyzed using an X-Ray Fluorescence (XRF) instrument. The XRF is a screening tool that is used in order to determine which depths of the sample locations contain the most potential for soil contamination. Two locations screened, XRF #13 at a depth of 5 inches and XRF #15 at a depth of 8 inches, showed copper in exceedance of the residential RML (9400 mg/kg) with XRF #15 also exceeding the Industrial RML (140,000 mg/kg). Also, XRF location #6 at a depth of 3 inches showed lead exceeded the Industrial RML (800 mg/kg). The XRF results are not meant to replace analytical lab results. The XRF results are presented in Attachment C.

Section 5.0 Source Discussion and Pathway Analysis

The HRS identifies three migration pathways and one exposure pathway by which hazardous substances may pose a threat to human health and/or the environment. Consequently, sites are evaluated based on their known or potential impact on these four pathways. The pathways evaluated are the groundwater migration pathway, the surface water migration pathway, the air migration pathway, and the soil exposure pathway. Based on information reviewed regarding the South California Site, the soil exposure pathway and the groundwater migration pathways were the focus of the Site Reassessment.

5.1 Source Summary

This section includes descriptions of the various hazardous waste sources that have been identified at South California Chemical. The Hazard Ranking System (HRS) defines a "source" as: "Any area where a hazardous substance has been stored, disposed or placed, plus those solids that have become contaminated from migration of hazardous substances." This does not include surface water or sediments below surface water that have become contaminated.

Nine soil samples were collected directly on the South California Chemical property and one soil sample north of the property in an attempt to identify areas of observed contamination and hazardous substances associated with the source. Parcel 3 of the South California Chemical site consists of an approximately 4.5-acre area which was impacted by the former businesses that were located on Parcels 1 and 2. Analytical data generated during this Site Reassessment indicates that the soil at this property (Parcel 3) has been contaminated by the activities of these former businesses.

Information obtained during the previous CERCLA investigation identified one source area. This source was identified as the contaminated soil on the South California Chemical property. The area of contaminated soil based on the results of these samples can be identified as a source for HRS scoring purposes. In order to be conservative, all three parcels were evaluated as a potential source area. The entire property is approximately 7 acres. Compounds identified as significantly above background in the upper two feet of material are included in the attached summary tables.

5.2 Soil Exposure Pathway

The soil exposure pathway appears to be the primary pathway of concern associated with the South California Chemical property. This determination is based upon information gathered during the 1990 Preliminary Assessment, the 1995 Site Inspection, the 1999 STEP investigation, the initial 2016 Site Reassessment, and this current Site Reassessment which included sampling. X-ray fluorescence and IEPA laboratory results indicate that in some areas of the site there is organic and inorganic contamination that meets CERCLA criteria for an observed release.

The property is not used for recreational purposes. No one currently lives at the property and the entire property has not been maintained. The site is over-grown and the many of the former buildings and structures located on Parcels 1 and 2 have been demolished and removed. There are a few residences west of the site and businesses directly adjacent to the site. There is a school across the street from the South California Chemical site. It should be noted that there is currently not a fence completely surrounding the property. Although the property is currently located in a rural setting, if this property is ever re-developed, the soil exposure pathway could become more of a potential threat at that time.

Census data has been compiled and formatted for use in GIS applications by ESRI, a GIS software company. The nearest residence is located approximately 450 feet west of the site. Other residences are located approximately 700 feet west and 800 feet north of the site, but the site is located in a rural setting. ESRI used demographic data from the "Census 2000 Summary File" represented by Census Block Centroids to generate data that can be overlain onto maps for analysis (ESRI). In order to calculate population in areas surrounding the site, the ESRI census data was overlain onto a map from the region and queried based on distance from the site's boundary. Population data based on GIS analysis for areas surrounding the site is shown below.

Population within one mile of the site

Distance (mi)	Population
On-Site	0
0-¼ mile	103
¼ -½ mile	380
½-1 mile	636

5.3 Groundwater Migration Pathway

Based on the analytical results of the five groundwater samples around the site no release of hazardous substances to the aquifer of concern is suspected. None of the organic contaminants of concern attributable to past activities at the South California Chemical property were found in the groundwater samples. A few of the inorganic contaminants were found in the water samples, but most of the results are low enough to be considered naturally occurring and only manganese was reported just above the RML of 1300ug/L. Lead at 19.7ug/L exceeded the MCL (15ug/L) in G103.

5.4 Surface Water Migration Pathway

Surface water drainage from the former site flows radially off-site or into an on-site low area generally forming a small pond. Radial drainage flows typically north and south into very shallow drainage ditches adjacent to the north and south property boundaries. Off-site drainage flows east and southeast in un-defined swales. Once away from the site the drainage routes become un-noticeable.

5.5 Air Migration Pathway

Although numerous citizen complaints and concerns were registered with IEPA in the mid 1970's, numerous compliance inspections having taken place, and various investigations by U.S.EPA and IEPA have occurred since that time, there have been no formal air samples collected. Complaints were mainly due to ammonia leaks from within the plant structures and from outside tanks and valve failures. The internal plant equipment was removed and site structures were demolished in 2002. No complaints of air contaminants or issues have since been registered.

Section 6.0 Summary and Conclusion

During the previous CERCLA investigations, it was determined that samples collected from the South California Chemical site revealed the presence of contaminants at or near the surface of the property and in the groundwater. This created possible exposure and migration pathways for soil exposure and groundwater ingestion for the nearby business and nearby residents of the South California Site. Approximately 636 people live within a one-mile radius of the site at which contamination above background had been documented. The closest village well (G102) is located (b) (9) [redacted]. This well is one of several wells in the village that helps to supply the Village of Union residents with water. No contaminants have been found in the well.

In summary, chemical contamination still exists on site and there is still the potential for this contamination to migrate off-site. Based on the nature of the contamination that was found during this investigation and past investigations, it is likely that most of the contamination was from the companies that manufactured inorganic chemical products at the property. No releases to air have been documented, but the contaminants near the surface create the potential for windblown particulates to carry contaminants away from the site. One of the concerns for the site is the soil contamination. Although this contamination pathway has been reduced greatly through the actions of Phibro-Tech on Parcels 1 and 2, there is no record of any investigations or remediation actions on Parcel 3. However, there is fencing that restricts access to Parcels 1 and 2 and there is partial fencing on Parcel 3 that limits access to it.

Section 7.0 References

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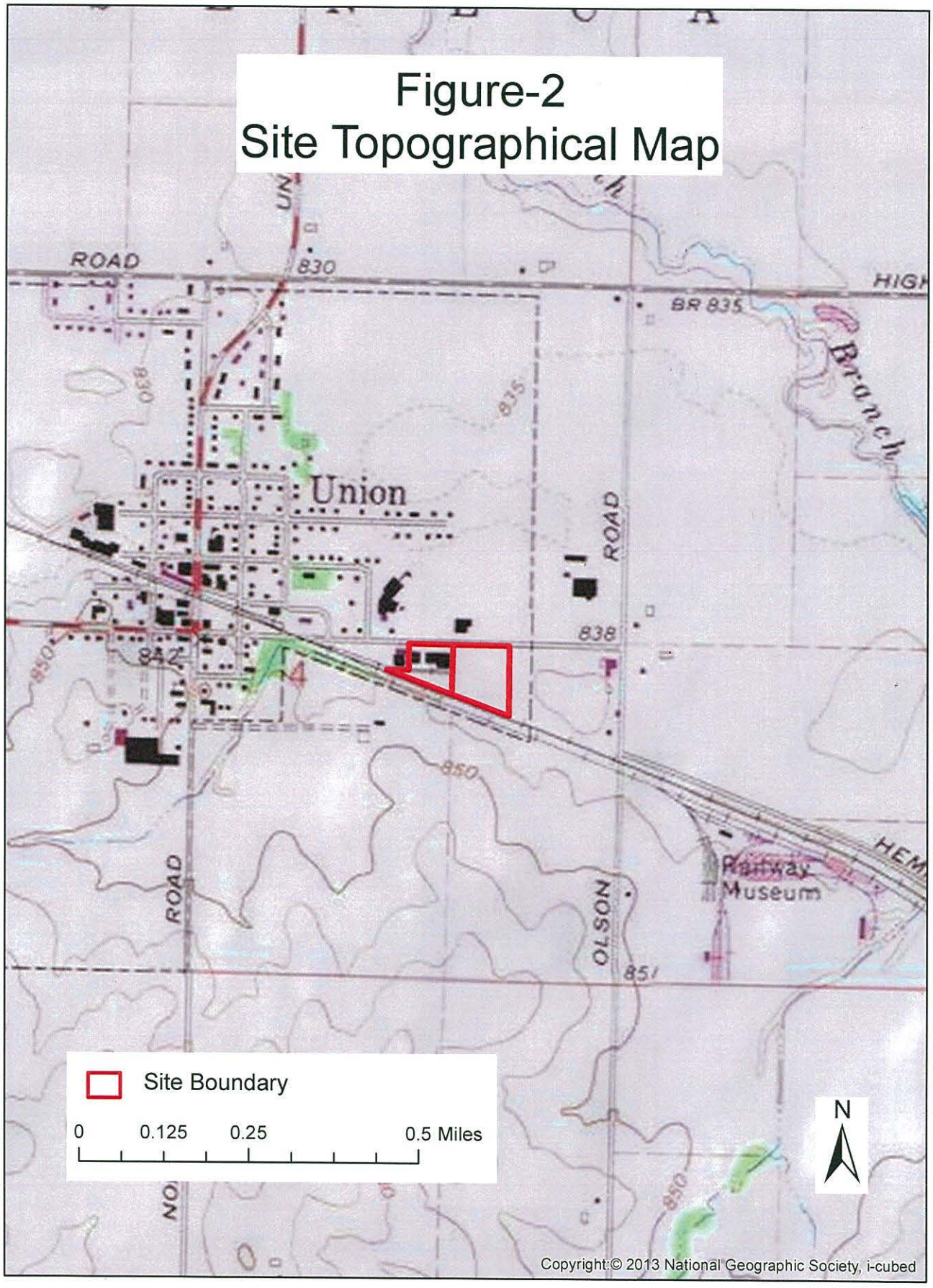
U.S. EPA web site:
http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0505862

Figure 1
Site Location Map

Figure-2
Site Topographical Map



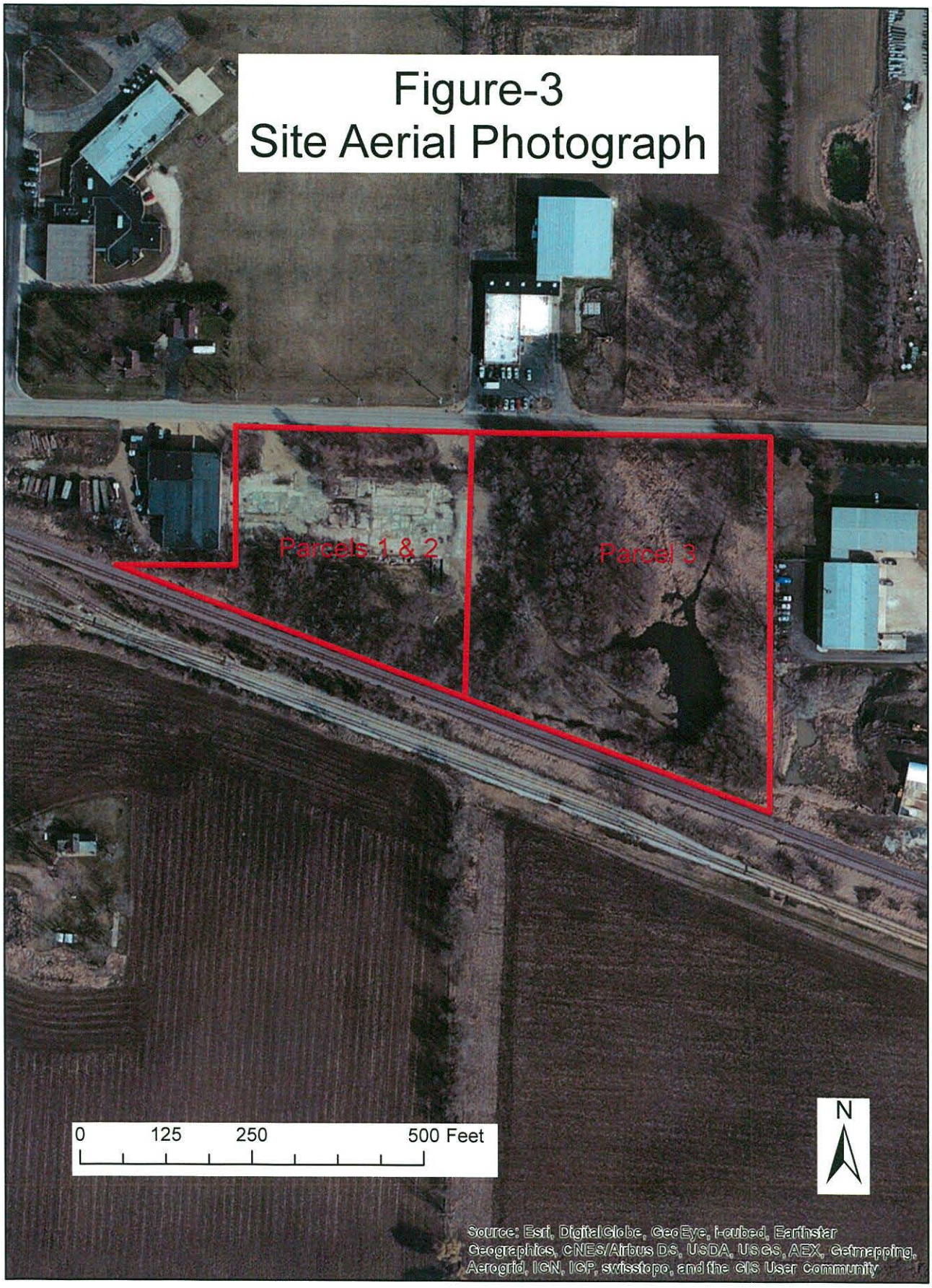


Figure-3
Site Aerial Photograph
Parcels 1 & 2
Parcel 3
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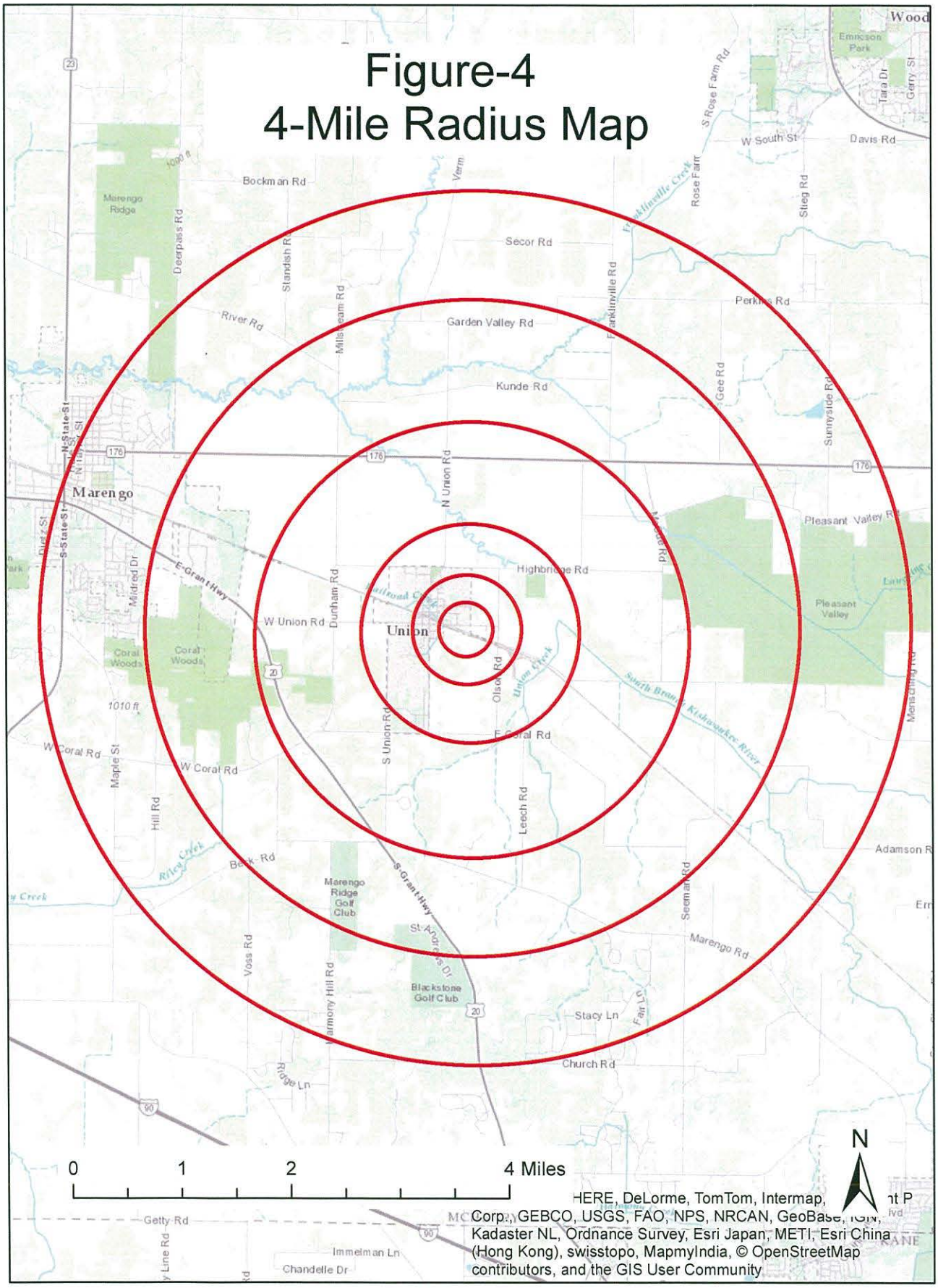
4-Mile Radius Map



(b) (9)


Figure 6
XRF Location Map
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
0
125
250
500 Feet
N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

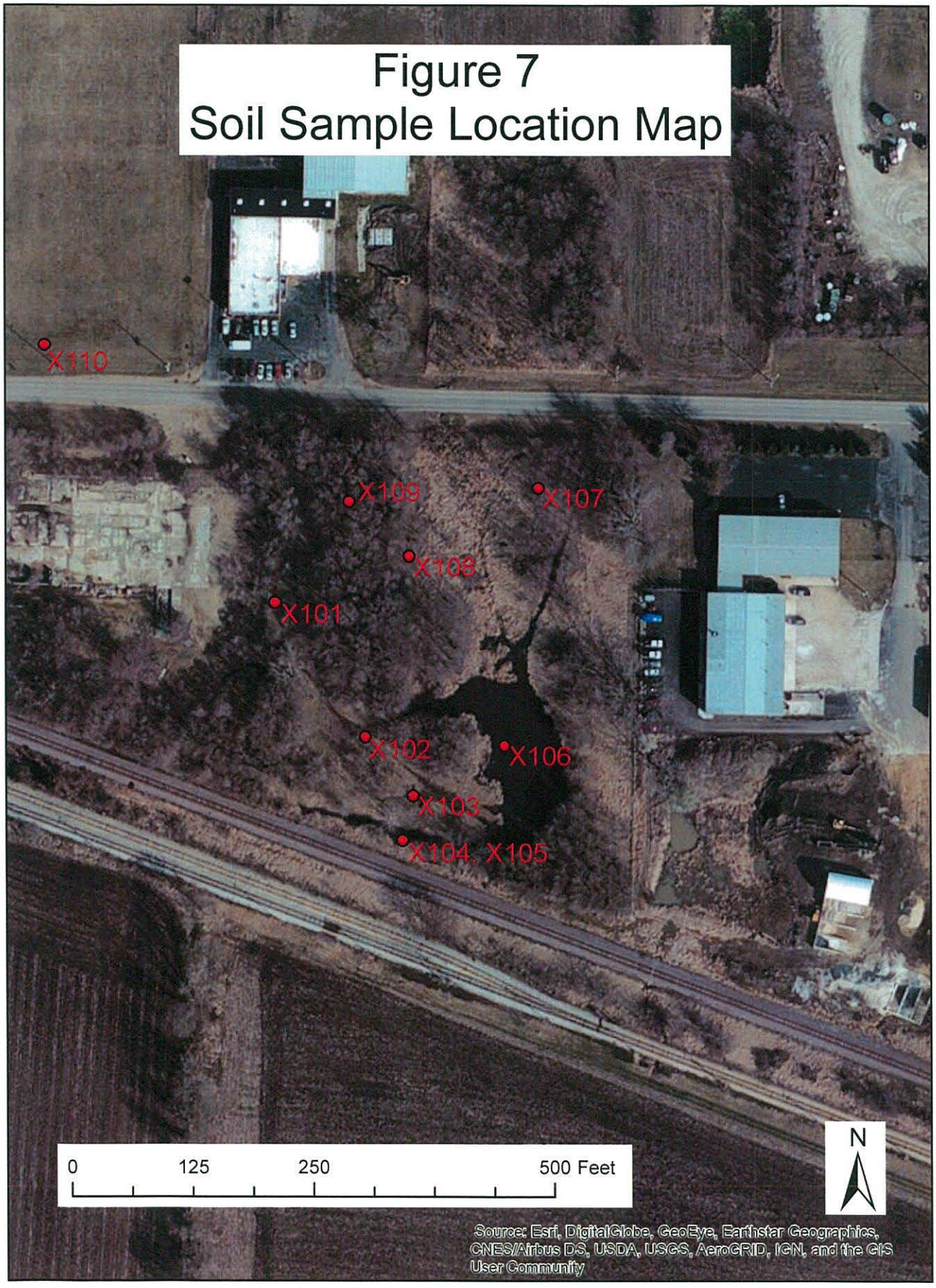


Figure 7
Soil Sample Location Map
X110
X109
X107
X108
X101
X102
X106
X103
X104, X105
0
125
250
500 Feet
N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

TABLE 1
South California Chemical
Soil Analytical Results
VOCs

Sample Number :	E5N91				E5N82		E5N83		E5N84		E5N85		E5N86	
Sampling Location :	X110				X101		X102		X103		X104		X105	
Matrix :	Soil				Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		3 times		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	11/3/16		background		11/2/16		11/3/16		11/3/16		11/3/16		11/3/16	
Time Sampled :	11:30				14:30		10:15		10:20		10:30		10:30	
%Solids:	78.7				85.4		75.7		75.9		72.2		69.2	
Dilution Factor :	1.0				1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Chloromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Vinyl chloride	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Bromomethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Chloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Trichlorofluoromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1-Dichloroethene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Acetone	12	U	36		9.7	U	12	U	13	UJ	14	U	18	U
Carbon disulfide	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Methyl acetate	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Methylene chloride	8.4	U	25.2		4.8	U	6.2	U	6.3	UJ	8.3	U	9.0	U
trans-1,2-Dichloroethene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Methyl tert-butyl ether	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1-Dichloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
cis-1,2-Dichloroethene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
2-Butanone	12	U	36		9.7	U	12	U	13	UJ	14	U	18	U
Bromochloromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Chloroform	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1,1-Trichloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Cyclohexane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Carbon tetrachloride	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Benzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2-Dichloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Trichloroethene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Methylcyclohexane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2-Dichloropropane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Bromodichloromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
cis-1,3-Dichloropropene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
4-Methyl-2-pentanone	12	U	36		9.7	U	12	U	13	UJ	14	U	18	U
Toluene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
trans-1,3-Dichloropropene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1,2-Trichloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Tetrachloroethene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
2-Hexanone	12	U	36		9.7	U	12	U	13	UJ	14	U	18	U
Dibromochloromethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2-Dibromoethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Chlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Ethylbenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
o-Xylene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
m,p-Xylene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Styrene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Bromoform	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
Isopropylbenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,1,2,2-Tetrachloroethane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,3-Dichlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,4-Dichlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2-Dichlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2-Dibromo-3-chloropropane	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2,4-Trichlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U
1,2,3-Trichlorobenzene	5.9	U	17.7		4.8	U	6.2	U	6.3	UJ	7.0	U	9.0	U

TABLE 1
South California Chemical
Soil Analytical Results
VOCs

Sample Number :	E5N87		E5N88		E5N89		E5N90							
Sampling Location :	X106		X107		X108		X109							
Matrix :	Soil		Soil		Soil		Soil							
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg							
Date Sampled :	11/3/16		11/3/16		11/3/16		11/3/16							
Time Sampled :	10:45		11:00		11:05		11:15							
%Solids:	75.8		63		59.4		69.3							
Dilution Factor :	1.0		1.0		1.0		1.0							
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.9	U	9.0	U	10	U	7.4	U						
Chloromethane	5.9	U	9.0	U	10	U	7.4	U						
Vinyl chloride	5.9	U	9.0	U	10	U	7.4	U						
Bromomethane	5.9	U	9.0	U	10	U	7.4	U						
Chloroethane	5.9	U	9.0	U	10	U	7.4	U						
Trichlorofluoromethane	5.9	U	9.0	U	10	U	7.4	U						
1,1-Dichloroethene	5.9	U	9.0	U	10	U	7.4	U						
1,1,2-Trichloro-1,2,2-trifluoroethane	5.9	U	9.0	U	10	U	7.4	U						
Acetone	12	U	12	J	20	U	15	U						
Carbon disulfide	5.9	U	9.0	U	10	U	7.4	U						
Methyl acetate	5.9	U	9.0	U	10	U	7.4	U						
Methylene chloride	6.8	U	9.0	U	12	U	7.8	U						
trans-1,2-Dichloroethene	5.9	U	9.0	U	10	U	7.4	U						
Methyl tert-butyl ether	5.9	U	9.0	U	10	U	7.4	U						
1,1-Dichloroethane	5.9	U	9.0	U	10	U	7.4	U						
cis-1,2-Dichloroethene	5.9	U	9.0	U	10	U	7.4	U						
2-Butanone	12	U	18	U	20	U	15	U						
Bromochloromethane	5.9	U	9.0	U	10	U	7.4	U						
Chloroform	5.9	U	9.0	U	10	U	7.4	U						
1,1,1-Trichloroethane	5.9	U	9.0	U	10	U	7.4	U						
Cyclohexane	5.9	U	9.0	U	10	U	7.4	U						
Carbon tetrachloride	5.9	U	9.0	U	10	U	7.4	U						
Benzene	5.9	U	9.0	U	10	U	7.4	U						
1,2-Dichloroethane	5.9	U	9.0	U	10	U	7.4	U						
Trichloroethene	5.9	U	9.0	U	10	U	7.4	U						
Methylcyclohexane	5.9	U	9.0	U	10	U	7.4	U						
1,2-Dichloropropane	5.9	U	9.0	U	10	U	7.4	U						
Bromodichloromethane	5.9	U	9.0	U	10	U	7.4	U						
cis-1,3-Dichloropropene	5.9	U	9.0	U	10	U	7.4	U						
4-Methyl-2-pentanone	12	U	18	U	20	U	15	U						
Toluene	5.9	U	9.0	U	10	U	7.4	U						
trans-1,3-Dichloropropene	5.9	U	9.0	U	10	U	7.4	U						
1,1,2-Trichloroethane	5.9	U	9.0	U	10	U	7.4	U						
Tetrachloroethene	5.9	U	9.0	U	10	U	7.4	U						
2-Hexanone	12	U	18	U	20	U	15	U						
Dibromochloromethane	5.9	U	9.0	U	10	U	7.4	U						
1,2-Dibromoethane	5.9	U	9.0	U	10	U	7.4	U						
Chlorobenzene	5.9	U	9.0	U	10	U	7.4	U						
Ethylbenzene	5.9	U	9.0	U	10	U	7.4	U						
o-Xylene	5.9	U	9.0	U	10	U	7.4	U						
m,p-Xylene	5.9	U	9.0	U	10	U	7.4	U						
Styrene	5.9	U	9.0	U	10	U	7.4	U						
Bromoform	5.9	U	9.0	U	10	U	7.4	U						
Isopropylbenzene	5.9	U	9.0	U	10	U	7.4	U						
1,1,2,2-Tetrachloroethane	5.9	U	9.0	U	10	U	7.4	U						
1,3-Dichlorobenzene	5.9	U	9.0	U	10	U	7.4	U						
1,4-Dichlorobenzene	5.9	U	9.0	U	10	U	7.4	U						
1,2-Dichlorobenzene	5.9	U	9.0	U	10	U	7.4	U						
1,2-Dibromo-3-chloropropane	5.9	U	9.0	U	10	U	7.4	U						
1,2,4-Trichlorobenzene	5.9	U	9.0	U	10	U	7.4	U						
1,2,3-Trichlorobenzene	5.9	U	9.0	U	10	U	7.4	U						

TABLE 2
South California Chemical
Soil Analytical Results
BNAs

Sample Number :	E5N91				E5N82		E5N83		E5N84		E5N85		E5N86	
Sampling Location :	X110				X101		X102		X103		X104		X105	
Matrix :	Soil				Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		3 times		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	11/3/16		background		11/2/16		11/3/16		11/3/16		11/3/16		11/3/16	
Time Sampled :	11:30				14:30		10:15		10:20		10:30		10:30	
%Moisture :	78.7				85.4		75.7		75.9		72.2		69.2	
Dilution Factor :	1.0				1.0		1.0		1.0		1.0		1.0	
BNA Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	85	U	255		78	U	88	UJ	88	U	92	U	97	UJ
Benzaldehyde	420	U	1260		270	J	430	U	430	U	460	U	480	U
Phenol	260	J	780		250	J	370	J	290	J	290	J	180	J
Bis(2-Chloroethyl)ether	420	U	1260		390	U	430	U	430	U	460	U	480	U
2-Chlorophenol	220	U	660		200	U	220	U	220	U	230	U	250	U
2-Methylphenol	420	U	1260		390	U	430	U	430	U	460	U	480	U
2,2-oxybis(1-Chloropropane)	420	U	1260		390	U	430	U	430	U	460	U	480	U
Acetophenone	420	U	1260		390	U	430	U	430	U	50	J	480	U
4-Methylphenol	420	U	1260		390	U	130	J	430	U	460	U	480	U
N-Nitroso-di-n-propylamine	220	U	660		200	U	220	U	220	U	230	U	250	U
Hexachloroethane	220	U	660		200	U	220	U	220	U	230	U	250	U
Nitrobenzene	220	U	660		200	U	220	U	220	U	230	U	250	U
Isophorone	220	U	660		200	U	260		140	J	230	U	250	U
2-Nitrophenol	220	U	660		200	U	220	U	220	U	230	U	250	U
2,4-Dimethylphenol	220	U	660		200	U	72	J	220	U	230	U	250	U
Bis(2-Chloroethoxy)methane	220	U	660		200	U	220	U	220	U	230	U	250	U
2,4-Dichlorophenol	220	U	660		200	U	220	U	220	U	230	U	250	U
Naphthalene	220	U	660		200	U	220	U	220	U	230	U	250	U
4-Chloroaniline	420	U	1260		390	U	430	U	430	U	460	U	480	U
Hexachlorobutadiene	220	U	660		200	U	220	U	220	U	230	U	250	U
Caprolactam	420	U	1260		390	U	430	U	430	U	460	U	480	U
4-Chloro-3-methylphenol	220	U	660		200	U	220	U	220	U	230	U	250	U
2-Methylnaphthalene	220	U	660		200	U	220	U	220	U	230	U	250	U
Hexachlorocyclopentadiene	420	U	1260		390	U	430	U	430	U	460	U	480	U
2,4,6-Trichlorophenol	220	U	660		200	U	220	U	220	U	230	U	250	U
2,4,5-Trichlorophenol	220	U	660		200	U	220	U	220	U	230	U	250	U
1,1-Biphenyl	220	U	660		200	U	220	U	220	U	230	U	250	U
2-Chloronaphthalene	220	U	660		200	U	220	U	220	U	230	U	250	U
2-Nitroaniline	220	U	660		200	U	220	U	220	U	230	U	250	U
Dimethylphthalate	230		690		170	J	100	J	160	J	170	J	110	J
2,6-Dinitrotoluene	220	U	660		200	U	220	U	220	U	230	U	250	U
Acenaphthylene	220	U	660		200	U	220	U	220	U	230	U	250	U
3-Nitroaniline	420	U	1260		390	U	430	U	430	U	460	U	480	U
Acenaphthene	220	U	660		200	U	220	U	220	U	230	U	250	U
2,4-Dinitrophenol	420	U	1260		390	U	430	U	430	U	460	U	480	U
4-Nitrophenol	420	U	1260		390	U	430	U	430	U	460	U	480	U
Dibenzofuran	220	U	660		200	U	220	U	220	U	230	U	250	U
2,4-Dinitrotoluene	220	U	660		200	U	220	U	220	U	230	U	250	U
Diethylphthalate	220	U	660		200	U	220	U	220	U	230	U	250	U
Fluorene	220	U	660		200	U	220	U	220	U	230	U	250	U
4-Chlorophenyl-phenylether	220	U	660		200	U	220	U	220	U	230	U	250	U
4-Nitroaniline	420	U	1260		390	U	430	U	430	U	460	U	480	U
4,6-Dinitro-2-methylphenol	420	U	1260		390	U	430	U	430	U	460	U	480	U
N-Nitrosodiphenylamine	220	U	660		200	U	220	U	220	U	230	U	250	U
1,2,4,5-Tetrachlorobenzene	220	U	660		200	U	220	U	220	U	230	U	250	U
4-Bromophenyl-phenylether	220	U	660		200	U	220	U	220	U	230	U	250	U
Hexachlorobenzene	220	U	660		200	U	220	U	220	U	230	U	250	U
Atrazine	420	U	1260		390	U	430	U	430	U	460	U	480	U
Pentachlorophenol	420	U	1260		390	U	430	U	430	U	460	U	480	U
Phenanthrene	220	U	660		200	U	250		220	U	230	U	250	U
Anthracene	220	U	660		200	U	220	U	220	U	230	U	250	U
Carbazole	420	U	1260		390	U	430	U	430	U	460	U	480	U
Di-n-butylphthalate	220	U	660		200	U	220	U	220	U	230	U	250	U
Fluoranthene	83	J	249		48	J	260	J	430	U	460	U	480	U
Pyrene	72	J	216		49	J	230		220	U	230	U	250	U
Butylbenzylphthalate	220	U	660		7800		220	U	220	U	230	U	250	U
3,3-Dichlorobenzidine	420	U	1260		390	U	430	U	430	U	460	U	480	U
Benzo(a)anthracene	220	U	660		200	U	100	J	220	U	230	U	250	U
Chrysene	220	U	660		42	J	120	J	220	U	230	U	250	U
Bis(2-ethylhexyl)phthalate	220	U	660		200	U	220	U	220	U	230	U	250	U
Di-n-octyl phthalate	420	U	1260		390	U	430	U	430	U	460	U	480	U
Benzo(b)fluoranthene	56	J	168		55	J	140	J	220	U	230	U	250	U
Benzo(k)fluoranthene	220	U	660		200	U	48	J	220	U	230	U	250	U
Benzo(a)pyrene	43	J	129		42	J	100	J	220	U	230	U	250	U
Indeno(1,2,3-cd)pyrene	220	U	660		200	U	58	J	220	U	230	U	250	U
Dibenzo(a,h)anthracene	220	U	660		200	U	220	U	220	U	230	U	250	U
Benzo(g,h,i)perylene	220	U	660		200	U	62	J	220	U	64	J	250	U
2,3,4,6-Tetrachlorophenol	220	U	660		200	U	220	U	220	U	230	U	250	U

TABLE 2
South California Chemical
Soil Analytical Results
BNAs

Sample Number :	E5N87		E5N88		E5N89		E5N90							
Sampling Location :	X106		X107		X108		X109							
Matrix :	Soil		Soil		Soil		Soil							
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg							
Date Sampled :	11/3/16		11/3/16		11/3/16		11/3/16							
Time Sampled :	10:45		11:00		11:05		11:15							
%Moisture :	75.8		63		59.4		69.3							
Dilution Factor :	1.0		1.0		1.0		1.0							
BNA Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	88	U	110	U	110	U	96	U						
Benzaldehyde	430	U	520	U	550	U	76	J						
Phenol	230	J	380	J	330	J	240	J						
Bis(2-Chloroethyl)ether	430	U	520	U	550	U	470	U						
2-Chlorophenol	220	U	270	U	290	U	240	U						
2-Methylphenol	430	U	520	U	550	U	470	U						
2,2-oxybis(1-Chloropropane)	430	U	520	U	550	U	470	U						
Acetophenone	430	U	520	U	550	U	97	J						
4-Methylphenol	430	U	520	U	550	U	470	U						
N-Nitroso-di-n-propylamine	220	U	270	U	290	U	240	U						
Hexachloroethane	220	U	270	U	290	U	240	U						
Nitrobenzene	220	U	270	U	290	U	240	U						
Isophorone	220	U	270	U	290	U	240	U						
2-Nitrophenol	220	U	270	U	290	U	240	U						
2,4-Dimethylphenol	220	U	270	U	290	U	240	U						
Bis(2-Chloroethoxy)methane	220	U	270	U	290	U	240	U						
2,4-Dichlorophenol	220	U	270	U	290	U	240	U						
Naphthalene	220	U	270	U	290	U	240	U						
4-Chloroaniline	430	U	520	U	550	U	470	U						
Hexachlorobutadiene	220	U	270	U	290	U	240	U						
Caprolactam	430	U	520	U	550	U	470	U						
4-Chloro-3-methylphenol	220	U	270	U	290	U	240	U						
2-Methylnaphthalene	220	U	270	U	290	U	240	U						
Hexachlorocyclopentadiene	430	U	520	U	550	U	470	U						
2,4,6-Trichlorophenol	220	U	270	U	290	U	240	U						
2,4,5-Trichlorophenol	220	U	270	U	290	U	240	U						
1,1-Biphenyl	220	U	270	U	290	U	240	U						
2-Chloronaphthalene	220	U	270	U	290	U	240	U						
2-Nitroaniline	220	U	270	U	290	U	240	U						
Dimethylphthalate	140	J	300		300		200	J						
2,6-Dinitrotoluene	220	U	270	U	290	U	240	U						
Acenaphthylene	220	U	270	U	290	U	240	U						
3-Nitroaniline	430	U	520	U	550	U	470	U						
Acenaphthene	220	U	270	U	290	U	86	J						
2,4-Dinitrophenol	430	U	520	U	550	U	470	U						
4-Nitrophenol	430	U	520	U	550	U	470	U						
Dibenzofuran	220	U	270	U	290	U	55	J						
2,4-Dinitrotoluene	220	U	270	U	290	U	240	U						
Diethylphthalate	220	U	270	U	290	U	240	U						
Fluorene	220	U	270	U	290	U	110	J						
4-Chlorophenyl-phenylether	220	U	270	U	290	U	240	U						
4-Nitroaniline	430	U	520	U	550	U	470	U						
4,6-Dinitro-2-methylphenol	430	U	520	U	550	U	470	U						
N-Nitrosodiphenylamine	220	U	270	U	290	U	240	U						
1,2,4,5-Tetrachlorobenzene	220	U	270	U	290	U	240	U						
4-Bromophenyl-phenylether	220	U	270	U	290	U	240	U						
Hexachlorobenzene	220	U	270	U	290	U	240	U						
Atrazine	430	U	520	U	550	U	470	U						
Pentachlorophenol	430	U	520	U	550	U	470	U						
Phenanthrene	220	U	84	J	290	U	1400							
Anthracene	220	U	270	U	290	U	230	J						
Carbazole	430	U	520	U	550	U	120	J						
Di-n-butylphthalate	220	U	270	U	290	U	240	U						
Fluoranthene	430	U	190	J	96	J	2100							
Pyrene	220	U	150	J	80	J	1600							
Butylbenzylphthalate	220	U	270	U	290	U	240	U						
3,3-Dichlorobenzidine	430	U	520	U	550	U	470	U						
Benzo(a)anthracene	220	U	73	J	290	U	770							
Chrysene	220	U	88	J	290	U	850							
Bis(2-ethylhexyl)phthalate	220	U	270	U	290	U	240	U						
Di-n-octyl phthalate	430	U	520	U	550	U	470	U						
Benzo(b)fluoranthene	220	U	130	J	67	J	1100							
Benzo(k)fluoranthene	220	U	270	U	290	U	290							
Benzo(a)pyrene	220	U	84	J	290	U	700							
Indeno(1,2,3-cd)pyrene	220	U	270	U	290	U	430							
Dibenzo(a,h)anthracene	220	U	270	U	290	U	130	J						
Benzo(g,h,i)perylene	220	U	60	J	290	U	430							
2,3,4,6-Tetrachlorophenol	220	U	270	U	290	U	240	U						

TABLE 3
South California Chemical
Water Analytical Results
VOCs

Sample Number :	E5N77				E5N75		E5N78		E5N79		E5N85		E5N86	
Sampling Location :	G102				G101		G103		G104		G110		FB	
Matrix :	Water				Water		Water		Water		Water		Water	
Units :	ug/L		3 times		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	11/1/16		background		11/2/16		11/2/16		11/2/16		11/1/16		11/2/16	
Time Sampled :	16:15				15:45		12:30		13:50		15:45		14:30	
Dilution Factor :	1.0				1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl chloride	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	10	U	30		10	U	10	U	10	U	10	U	10	U
Carbon disulfide	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl acetate	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene chloride	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,2-Dichloroethene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,2-Dichloroethene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Butanone	10	U	30		10	U	10	U	10	U	10	U	10	U
Bromochloromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,1-Trichloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cyclohexane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon tetrachloride	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichloroethene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylcyclohexane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	10	U	30		10	U	10	U	10	U	10	U	10	U
Toluene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-Dichloropropene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	10	U	30		10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromoethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
o-Xylene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
m,p-Xylene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Styrene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Isopropylbenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dibromo-3-chloropropane	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,4-Trichlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2,3-Trichlorobenzene	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U

TABLE 3
South California Chemical
Water Analytical Results
VOCs

Sample Number :	E5N86													
Sampling Location :	TB													
Matrix :	Water													
Units :	ug/L													
Date Sampled :	11/2/16													
Time Sampled :	15:00													
Dilution Factor :	1.0													
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	5.0	U												
Chloromethane	5.0	U												
Vinyl chloride	5.0	U												
Bromomethane	5.0	U												
Chloroethane	5.0	U												
Trichlorofluoromethane	5.0	U												
1,1-Dichloroethene	5.0	U												
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U												
Acetone	10	U												
Carbon disulfide	5.0	U												
Methyl acetate	5.0	U												
Methylene chloride	5.0	U												
trans-1,2-Dichloroethene	5.0	U												
Methyl tert-butyl ether	5.0	U												
1,1-Dichloroethane	5.0	U												
cis-1,2-Dichloroethene	5.0	U												
2-Butanone	10	U												
Bromochloromethane	5.0	U												
Chloroform	5.0	U												
1,1,1-Trichloroethane	5.0	U												
Cyclohexane	5.0	U												
Carbon tetrachloride	5.0	U												
Benzene	5.0	U												
1,2-Dichloroethane	5.0	U												
Trichloroethene	5.0	U												
Methylcyclohexane	5.0	U												
1,2-Dichloropropane	5.0	U												
Bromodichloromethane	5.0	U												
cis-1,3-Dichloropropene	5.0	U												
4-Methyl-2-pentanone	10	U												
Toluene	5.0	U												
trans-1,3-Dichloropropene	5.0	U												
1,1,2-Trichloroethane	5.0	U												
Tetrachloroethene	5.0	U												
2-Hexanone	10	U												
Dibromochloromethane	5.0	U												
1,2-Dibromoethane	5.0	U												
Chlorobenzene	5.0	U												
Ethylbenzene	5.0	U												
o-Xylene	5.0	U												
m,p-Xylene	5.0	U												
Styrene	5.0	U												
Bromoform	5.0	U												
Isopropylbenzene	5.0	U												
1,1,2,2-Tetrachloroethane	5.0	U												
1,3-Dichlorobenzene	5.0	U												
1,4-Dichlorobenzene	5.0	U												
1,2-Dichlorobenzene	5.0	U												
1,2-Dibromo-3-chloropropane	5.0	U												
1,2,4-Trichlorobenzene	5.0	U												
1,2,3-Trichlorobenzene	5.0	U												

TABLE 4
South California Chemical
Water Analytical Results
BNAs

Sample Number :	E5N77				E5N75		E5N78		E5N79		E5N85		E5N86	
Sampling Location :	G102				G101		G103		G104		G110		FB	
Matrix :	Water				Water		Water		Water		Water		Water	
Units :	ug/L				ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	11/1/16				11/2/16		11/2/16		11/2/16		11/1/16		11/2/16	
Time Sampled :	16:15				15:45		12:30		13:50		15:45		14:30	
Dilution Factor :	1.0				1.0		1.0		1.0		1.0		1.0	
BNA Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	2	UJ	6		2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Benzaldehyde	10	U	30		10	U	10	U	10	U	10	U	10	U
Phenol	10	U	30		10	U	10	U	10	U	10	U	10	U
Bis(2-Chloroethyl)ether	10	U	30		10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2-Methylphenol	10	U	30		10	U	10	U	10	U	10	U	10	U
2,2-oxybis(1-Chloropropane)	10	U	30		10	U	10	U	10	U	10	U	10	U
Acetophenone	10	U	30		10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	30		10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Hexachloroethane	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Nitrobenzene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Isophorone	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2-Nitrophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,4-Dimethylphenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Bis(2-Chloroethoxy)methane	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,4-Dichlorophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Naphthalene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
4-Chloroaniline	10	UJ	30		10	UJ	10	U	10	U	10	UJ	10	U
Hexachlorobutadiene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Caprolactam	10	U	30		10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2-Methylnaphthalene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Hexachlorocyclopentadiene	10	U	30		10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,4,5-Trichlorophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
1,1-Biphenyl	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2-Chloronaphthalene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2-Nitroaniline	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Dimethylphthalate	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,6-Dinitrotoluene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Acenaphthylene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
3-Nitroaniline	10	U	30		10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,4-Dinitrophenol	10	U	30		10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	10	U	30		10	U	10	U	10	U	10	U	10	U
Dibenzofuran	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,4-Dinitrotoluene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Diethylphthalate	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	12	
Fluorene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
4-Chlorophenyl-phenylether	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
4-Nitroaniline	10	U	30		10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	10	U	30		10	U	10	U	10	U	10	U	10	U
N-Nitrosodiphenylamine	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
1,2,4,5-Tetrachlorobenzene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
4-Bromophenyl-phenylether	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Hexachlorobenzene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Atrazine	10	U	30		10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	10	U	30		10	U	10	U	10	U	10	U	10	U
Phenanthrene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Anthracene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Carbazole	10	U	30		10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Fluoranthene	10	U	30		10	U	10	U	10	U	10	U	10	U
Pyrene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Butylbenzylphthalate	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
3,3-Dichlorobenzidine	10	U	30		10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Chrysene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Bis(2-ethylhexyl)phthalate	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Di-n-octyl phthalate	10	U	30		10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Benzo(k)fluoranthene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Benzo(a)pyrene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Indeno(1,2,3-cd)pyrene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Dibenzo(a,h)anthracene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
Benzo(g,h,i)perylene	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U
2,3,4,6-Tetrachlorophenol	5.1	U	15.3		5.1	U	5.1	U	5.0	U	5.1	U	5.0	U

TABLE 5
South California Chemical
Soil Analytical Results
Inorganic

Sample Number :	ME5N91			ME5N82		ME5N83		ME5N84		ME5N85		ME5N86	
Sampling Location :	X110			X101		X102		X103		X104		X105	
Matrix :	Soil			Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		3 times	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	11/3/16		background	11/3/16		11/3/16		11/3/16		11/3/16		11/3/16	
Time Sampled :	11:30			10:00		10:15		10:20		10:30		10:45	
%Solids:	82			87.8		71		77.3		68.6		69.7	
Dilution Factor :	1.0			1.0		1.0		1.0		1.0		1.0	
Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	9660		28980		8170		5800		11200		11800		10700	
Antimony	7.2	UJ	21.6		0.94	J	1.5	J	7.7	UJ	0.83	J	0.88	J
Arsenic	3	J	9		4.0	J	5.7	J	5.0	J	5.5	J	4.5	J
Barium	54.8	J	164.4		44.2	J	32.6	J	59.9	J	50.5	J	48.0	J
Beryllium	0.25	J	0.75		0.35	J	0.45	J	0.42	J	0.53	J	0.58	J
Cadmium	0.1	J	0.3		0.21	J	0.24	J	0.24	J	0.16	J	0.21	J
Calcium	2980	J	8940		24300	J	12100	J	8060	J	3960	J	4450	J
Chromium	12.5	J	37.5		50.4	J	820	J	549	J	118	J	135	J
Cobalt	6.2	J	18.6		6.3	J	22.8	J	6.6	J	3.4	J	3.2	J
Copper	46.7	J	140.1		3370	J	16300	J	8390	J	10200	J	11100	J
Iron	13300	J	39900		12900	J	42100	J	35400	J	31500	J	27200	J
Lead	8.3	J	24.9		268	J	52.9	J	58.9	J	24.8	J	25.6	J
Magnesium	2920	J	8760		15900	J	7430	J	5370	J	2610	J	2870	J
Manganese	340	J	1020		232	J	200	J	217	J	81.3	J	97.3	J
Nickel	9.3	J	27.9		47.5	J	45.6	J	30.9	J	17.3	J	20.1	J
Potassium	820		2460		1140		705		922		1300		1180	
Selenium	4.2	UJ	12.6		3.0	UJ	3.7	UJ	4.5	UJ	4.9	UJ	5.0	UJ
Silver	1.2	UJ	3.6		0.85	UJ	0.63	J	0.29	J	0.35	J	0.19	J
Sodium	597	U	1791		91.1	J	39.4	J	44.1	J	44.0	J	42.1	J
Thallium	3	UJ	9		2.1	UJ	2.6	UJ	3.2	UJ	3.5	UJ	3.5	UJ
Vanadium	31.4	J	94.2		24.8	J	15.0	J	29.8	J	25.3	J	23.1	J
Zinc	36.3	J	108.9		143	J	144	J	105	J	65.8	J	72.5	J

TABLE 5
South California Chemical
Soil Analytical Results
Inorganic

Sample Number :	ME5N87		ME5N88		ME5N89		ME5N90	
Sampling Location :	X106		X107		X108		X109	
Matrix :	Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	11/3/16		11/3/16		11/3/16		11/3/16	
Time Sampled :	10:45		11:00		11:05		11:15	
%Solids:	76		66.5		61.1		73.5	
Dilution Factor :	1.0		1.0		1.0		1.0	
Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	18800		23000		12600		8380	
Antimony	7.5	UJ	7.7	UJ	8.2	UJ	7.2	UJ
Arsenic	5.6	J	3.2	J	2.4	J	2.4	J
Barium	106	J	105	J	68.2	J	39.7	J
Beryllium	0.97	J	0.77	J	0.41	J	0.54	J
Cadmium	0.26	J	0.29	J	0.21	J	0.20	J
Calcium	4620	J	5390	J	5390	J	20400	J
Chromium	287	J	32.3	J	39.4	J	37.3	J
Cobalt	5.1	J	5.1	J	3.2	J	4.5	J
Copper	5050	J	267	J	1490	J	919	J
Iron	24300	J	18300	J	11300	J	9970	J
Lead	24.9	J	16.8	J	13.4	J	18.3	J
Magnesium	3830	J	4450	J	2650	J	11800	J
Manganese	202	J	119	J	88.6	J	197	J
Nickel	21.1	J	16.3	J	10.9	J	10.8	J
Potassium	2110		2800		1560		1400	
Selenium	4.4	UJ	4.5	UJ	4.8	UJ	4.2	UJ
Silver	1.3	UJ	1.3	UJ	1.4	UJ	1.2	UJ
Sodium	46.9	J	643	U	681	U	43.7	J
Thallium	3.1	UJ	3.2	UJ	3.4	UJ	3.0	UJ
Vanadium	36.7	J	39.3	J	22.4	J	18.9	J
Zinc	86.0	J	73.2	J	50.2	J	44.8	J

TABLE 6
South California Chemical
Water Analytical Results
Inorganic

Sample Number :	ME5N77				ME5N75		ME5N78		ME5N79		ME5N76		ME5N80	
Sampling Location :	G102				G101		G103		G104		G110		FB	
Matrix :	Water				Water		Water		Water		Water		Water	
Units :	ug/L		3 times background		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	11/1/16				11/1/16		11/1/16		11/2/16		11/1/16		11/2/16	
Time Sampled :	16:15				15:45		10:15		13:50		15:45		14:30	
Dilution Factor :	1.0				1.0		1.0		1.0		1.0		1.0	
Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	200	U	600		1280		9060		200	U	1460		200	U
Antimony	60	U	180		3.7	J	60.0	U	60.0	U	60.0	U	60.0	U
Arsenic	4	J	12		10.0	U	5.7	J	10.0	U	10.0	U	10.0	U
Barium	1830	J	5490		46.9	J	59.9	J	24.4	J	47.2	J	200	UJ
Beryllium	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cadmium	5	U	15		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Calcium	50500	J	151500		160000	J	195000	J	84300	J	162000	J	5000	UJ
Chromium	10	U	30		10.0	U	31.2		10.0	U	10.0	U	10.0	U
Cobalt	50	U	150		50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Copper	25	U	75		25.0	U	52.0		25.0	U	25.0	U	25.0	U
Iron	275		825		4630		24900		100	U	5300		100	U
Lead	10	U	30		4.6	J	19.7		10.0	U	6.1	J	10.0	U
Magnesium	30000	J	90000		50300	J	102000	J	35700	J	50500	J	5000	UJ
Manganese	15	U	45		1310		526		15.0	U	1300		15.0	U
Nickel	40	U	120		9.7	J	26.9	J	40.0	U	10.4	J	40.0	U
Potassium	4940	J	14820		1440	J	2380	J	1670	J	1340	J	5000	U
Selenium	35	U	105		35.0	U	35.0	U	35.0	U	35.0	U	35.0	U
Silver	10	U	30		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Sodium	22500	J	67500		21800	J	5000	UJ	30000	J	21300	J	191	J
Thallium	25	U	75		25.0	U	25.0	U	25.0	U	25.0	U	25.0	U
Vanadium	50	U	150		6.1	J	32.8	J	50.0	U	7.0	J	50.0	U
Zinc	65.8	J	197.4		60.0	UJ	133	J	60.0	UJ	60.0	UJ	60.0	UJ

TABLE 7
Sample Descriptions

Sample	Location	Depth	Description
X101 (Location 2)	Collected from the west side near the parcel boundary	7 inches	Tan sandy loam/gravel
X102 (Location 4)	Collected from the southwest side of the parcel	5 inches	Dark brown loam/gravel
X103 (Location 5)	Collected from the south side of the parcel	2 inches	Dark brown loam/gravel
X104, X105 (Location 17)	Collected from the south side near the parcel boundary; Sample X105 is a duplicate sample of X104	2 inches	Dark brown loam/gravel
X106 (Location 8)	Collected from the southeast side of the parcel near the pond	3 inches	Black wet loam
X107 (Location 10)	Collected from the northeast side of the parcel	4 inches	Black loam
X108 (Location 8)	Collected near the center of the parcel	3inches	Black loam
X109 (Location 13)	Collected from the northwest side of the parcel	1 inches	Black sandy loam
X110	Collected as the background sample northwest of the site	3 inches	Black loam
G101, G110	Collected northwest of the site; G110 is a duplicate sample of G101		
G102	Collected from the Village municipal well as a background sample		
G103	Collected northwest of the site along the parcel boundary		
G104	Collected northeast of the site just outside the parcel boundary		
FB	Collected from distilled water from the IEPA lab		Sample was collected for Quality Assurance/Quality Control purposes

ATTACHMENT A

LOGBOOK

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

S Cal Chem

GPS Location 1 black loam, mellic

XRF #2 Pb 21 Surface
Cu 212

XRF #3 Pb 16, Cu 303 3"

XRF #4 Pb BDL, 8"

* GPS 2 Gravel, loam, berm

XRF 5 Copper 5541 Pb 80 surface

XRF 6 Copper 2463 Pb 949
↳ circuit blank board

7 Pb 270, Cu 4576 7"

GPS 3 black loam

XRF 8 Pb 23, Cu 414 surface

XRF 9 Pb 19, Cu 370 2.5"

XRF 10 Pb 41 Cu 346 5"

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

* GPS Y upon area, moss on surface, soil loam w/ sparkly sand

XRF 11 Pb 50 Cu 6531 surface

XRF 12 Pb 59 Cu 7958 2"

XRF 13 Pb 57 Cu 12109 5"

ground 7-8" hit circuit board

XRF 14 Pb 213 Cu 1575 8"

XRF 15 piece of board 8"
Cu 210%, Pb 151

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

*

GPS 5 on top of mounds

XRF 16 Cu 9057 Pb 50 surface black material loam w/ rust color 1/2"

XRF 17 Cu 9097 2"

XRF 18 Cu 6993, Pb 52 5"

XRF 19 Cu 4056, Pb 28 12"+

GPS 6
low open area, moss

XRF 20 Cu 2340 Pb 25 surface w/ black loam

XRF 21 Cu 3370, Pb 28 3"

XRF 22 Cu 1593, Pb ND 10"

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

GPS 7

South corner, trees

XRF 23 Cu 637, Pb 15 surface
black loam

XRF 24 Cu 387, Pb 16 3"

XRF 25 Cu 133, Pb 21 7"

* GPS 8

low, black loam, no grass
was under H_2O

XRF 26 Cu 3451, Pb 20 surface

XRF 27 Cu 5040, Pb 31 3"

XRF 28 Cu 4072, Pb 24 8"

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

GPS 9

tree area, black loam, roots

XRF 29 Cu 367, Pb 15 surface

XRF 30 Cu 2958 Pb 23 4"

XRF 31 Cu 988, Pb ND 11"
dry loam

Bkgnd?

GPS 10 same as 9

XRF 32 Cu 247, Pb 20 surface

XRF 33 Cu 67 Pb 16 4"

XRF 34 Cu 92 Pb 18 8"

Location _____ Date _____

Project / Client _____

Location _____ Date _____

Project / Client _____

GPS 11

higher ground, trees
black loam roots

XRF 35 Cu 486, Pb 21 surface

XRF 36 Cu 6,377 Pb 32 3"

XRF 37 Cu 4,260 Pb 25 12"

GPS 12

mounded area, moss
black silt

XRF 38 Cu 350 Pb 25 surface

XRF 39 – roots
Cu 427, Pb 26 3"

XRF 40 loam, gravel 6"
Cu 262 Pb 20

Location _____ Date _____

Project / Client _____

Location Union, IL Date 11-2-16

Project / Client South California Chemical

GPS 13 area where soil moved around

XRF 41 Cu 1217, Pb 27 surface
black loam

XRF 42 ~~[illegible]~~ 4"
Cu 304, Pb ND

XRF 43 Cu 474 Pb 22 6"

GP3 14

XRF3 Dark brown loam
Cu 1417 Pb 39 surface

XRF 4 Cu 694 Pb 24

XRF 5 Cu 385 Pb 33

SP 11-2-16

GPS 15

XRF 6	Cu 395	Pb 51
XRF 7	Cu 1490	Pb 78
XRF 8	Cu 834	Pb 66

GPS 16

XRF 9	Cu 897	Pb 26
XRF 10	Cu 1224	Pb ND
XRF 11	Cu 979	Pb ND

GPS 17

XRF 12	Don't use	
XRF 13	Cu 4555	Pb 34
XRF 14	Cu 6822	Pb 34
XRF 15	Cu 4653	Pb 25

DP 11-2-16

X101 10:00 Location 2
Tansandy loam/gravel
Sample collected at 7"
Picture taken facing south

X102 10:15 Location 4
Dark brown loam/gravel
Sample collected at 5"
Picture taken facing south

X103 10:20 Location 5
Dark brown loam/gravel
Sample collected at 2"
Picture taken facing southwest

X104, X105 10:30 Location 17
Dark brown loam/gravel
Sample collected @ 2"
Picture taken facing southwest

X106 10:45 Location 8
Black wet loam
Sample collected @ 3"
Picture taken facing southeast

Location Union, IL Date 11-3-16

Project / Client South California Chemical

X107 11:00 Location 10
Black Loam 4"
Sample collected at 4"
Picture taken facing southeast

X108 11:05 Location 11
Black Loam
Sample collected at 3"
Picture taken facing north

X109 11:15 Location 13
Black sandy loam
Sample collected collected at 1"
Picture taken facing north

X110 + MS/MSD 11:30
Black loam
Sample collected at 3"
Picture taken facing northwest

COR 11-3-16

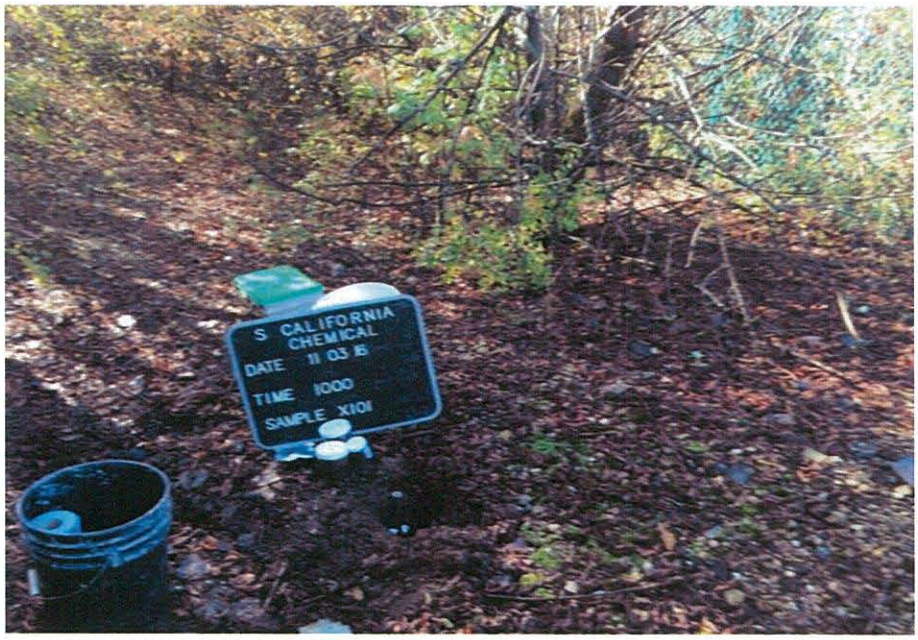
ATTACHMEN B

PHOTOSHEETS

SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/3/2016
TIME:	10:00
PHOTO BY:	Dave Reed
DIRECTION:	South
COMMENTS:	X101

Sample collected at 7"



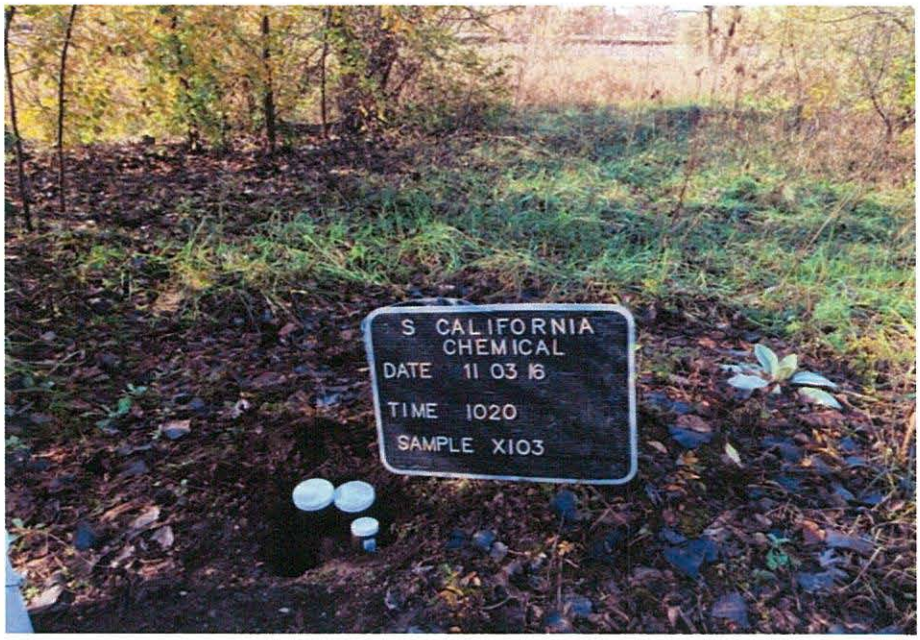
DATE:	11/3/2016
TIME:	10:15
PHOTO BY:	Dave Reed
DIRECTION:	South
COMMENTS:	X102

Sample collected at 5"

SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/3/2016
TIME:	10:20
PHOTO BY:	Dave Reed
DIRECTION:	Southwest
COMMENTS:	X103

Sample collected at 2'



DATE:	11/3/2016
TIME:	10:30
PHOTO BY:	Dave Reed
DIRECTION:	Southwest
COMMENTS:	X104, X105

X105 is a field duplicate of X104
sample was collected at 2"

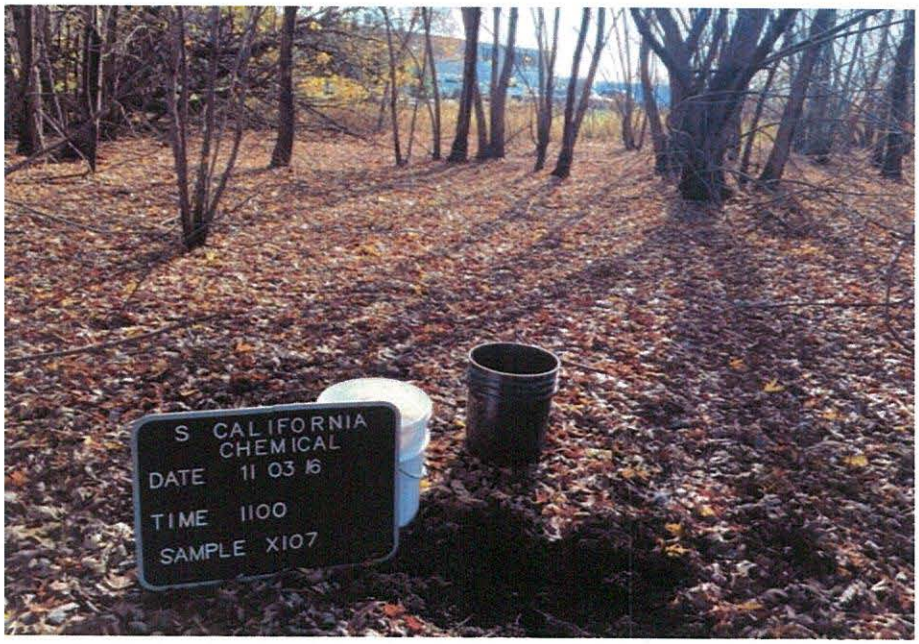
SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/3/2016
TIME:	10:45
PHOTO BY:	Dave Reed
DIRECTION:	Southeast
COMMENTS:	X106

Sample collected at 3"

DATE:	11/3/2016
TIME:	11:00
PHOTO BY:	Dave Reed
DIRECTION:	Southeast
COMMENTS:	X107

Sample collected at 4"



SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/3/2016
TIME:	11:05
PHOTO BY:	Dave Reed
DIRECTION:	North
COMMENTS:	X108

Sample collected at 3"

DATE:	11/3/2016
TIME:	11:15
PHOTO BY:	Dave Reed
DIRECTION:	North
COMMENTS:	X109

Sample collected at 1"

SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/3/2016
TIME:	11:30
PHOTO BY:	Dave Reed
DIRECTION:	Northwest
COMMENTS:	X110

Sample collected at 3"

SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/2/2016
TIME:	15:45
PHOTO BY:	Dave Reed
DIRECTION:	Northwest
COMMENTS:	G101, G110

Sample G101, was taken over by the first telephone pole on the left side of the picture. The sample was taken just north of the utility flags in the picture. It is the same location as X110. Sample G110 is a duplicate sample of G101.

DATE:	11/1/2016
TIME:	16:15
PHOTO BY:	Dave Reed
DIRECTION:	South
COMMENTS:	G102

Sample G102, was collected before filtration at the city pumphouse for the well at this location. The sample was collected from the faucet directly under the pressure gauge on the blue pipe in this photo.

SITE NAME:	South California Chemical		
BOL ID:	ILD 059 483 081	**COUNTY:**	McHenry

DATE:	11/2/2016
TIME:	12:30
PHOTO BY:	Dave Reed
DIRECTION:	North
COMMENTS:	G103

DATE:	11/2/2016
TIME:	13:50
PHOTO BY:	Dave Reed
DIRECTION:	South
COMMENTS:	G104

ATTACHMENT C

XRF DATA

Attachment C

XRF Data

Date	Scan	Mode	Ti	Cr	Mn	Fe	Co	Ni	Cu	Zn	As	Se	Rb	Sr	Zr	Mo	Ag	Cd	Sn	Sb	Ba	Hg	Pb
1-Nov-16	1	Standardization																					
1-Nov-16	2	Soil	1671	<LOD	142	11464	<LOD	<LOD	212	109	<LOD	<LOD	30	52	97	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	21
1-Nov-16	3	Soil	2849	<LOD	234	13319	233	<LOD	303	91	<LOD	<LOD	44	51	142	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	16
1-Nov-16	4	Soil	<LOD	<LOD	<LOD	10756	<LOD	<LOD	<LOD	291	73	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	1321	<LOD	<LOD	<LOD	<LOD
1-Nov-16	5	Soil	1746	<LOD	<LOD	15427	<LOD	<LOD	5541	139	<LOD	<LOD	34	77	63	<LOD	<LOD	<LOD	<LOD	<LOD	657	<LOD	80
1-Nov-16	6	Soil	<LOD	<LOD	<LOD	10666	<LOD	386	2463	225	<LOD	773	14317	331	158	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	763	949
1-Nov-16	7	Soil	1984	294	173	15480	<LOD	<LOD	4576	225	<LOD	<LOD	38	93	114	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	270
1-Nov-16	8	Soil	1492	<LOD	254	12954	<LOD	<LOD	414	63	<LOD	<LOD	37	57	149	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	23
1-Nov-16	9	Soil	2178	<LOD	297	15983	<LOD	<LOD	370	51	<LOD	<LOD	43	60	159	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	19
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1-Nov-16	43	Soil	<LOD	<LOD	241	12733	<LOD	<LOD	474	64	<LOD	<LOD	30	59	95	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	22
2-Nov-16	1	Standardization																					
2-Nov-16	2	Soil	<LOD	<LOD	<LOD	12733	<LOD	<LOD	<LOD	495	<LOD	<LOD	<LOD	<LOD	117	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
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2-Nov-16	4	Soil	2065	<LOD	<LOD	13867	209	<LOD	694	78	<LOD	<LOD	46	67	146	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	24
2-Nov-16	5	Soil	1979	<LOD	215	14549	294	<LOD	385	84	<LOD	<LOD	56	66	120	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	33
2-Nov-16	6	Soil	<LOD	<LOD	294	37353	523	<LOD	325	298	<LOD	<LOD	24	55	52	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	51
2-Nov-16	7	Soil	1742	<LOD	352	22054	328	<LOD	1490	476	<LOD	<LOD	40	66	105	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	78
2-Nov-16	8	Soil	2276	<LOD	250	18991	<LOD	100	834	327	<LOD	<LOD	36	64	94	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	66
2-Nov-16	9	Soil	<LOD	<LOD	<LOD	6925	222	<LOD	897	78	<LOD	<LOD	28	46	59	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	26
2-Nov-16	10	Soil	1451	<LOD	133	14042	<LOD	<LOD	1224	77	<LOD	<LOD	50	67	133	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD
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2-Nov-16	12	Soil	<LOD	<LOD	<LOD	19845	376	<LOD	4504	128	<LOD	<LOD	28	51	76	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	28
2-Nov-16	13	Soil	<LOD	<LOD	240	24086	306	<LOD	4555	154	<LOD	<LOD	30	44	68	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	34
2-Nov-16	14	Soil	1459	<LOD	<LOD	32660	492	<LOD	6822	163	<LOD	<LOD	50	47	95	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	34
2-Nov-16	15	Soil	1617	<LOD	211	24489	<LOD	<LOD	4653	116	<LOD	<LOD	50	56	104	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	<LOD	25

<LOD = Less Than Detection Limit